

Chapter 2 Water Body Designations

2-1. Salt Water

a. Saltwater harbors supporting deep-sea fishing are generally located within 15 miles (24 km) of open water. A 5-ft (1.5-m) minimum channel depth is usually maintained. Navigation to and from the marina should be relatively easy, with numerous aids to navigation. There are usually no restrictions on speed or wake, except within the immediate vicinity of the marina. Estuarine harbors are typically located within 5 miles of suitable fishing waters. A 4-ft (1.2-m) minimum channel depth is usually maintained. Navigation is normally easy, with readily identifiable landmarks and numerous guides to navigation (Chamberlain 1983).

b. It is desirable to locate coastal marinas or small boat basins in protected waters such as tidal rivers, bays, estuaries, lagoons, inlets, and coves. However, unprotected coastal environments may also be suitable if breakwaters or artificial harbors are constructed to protect the marina against waves and currents. Facilities constructed in such high energy environments require a more detailed design and are more costly to construct, as compared to a marina in a more protected environment.

c. Small boat basins are designed to provide safe and secure vessel mooring with quick, convenient access to navigable waters. The design should be appropriate for local weather conditions, i.e., wind, precipitation, ice, fog, etc. A deep-water site with maximum natural protection will minimize alterations of the site and adverse impacts of construction. Dredging and maintenance of the facility will be minimized by locating the harbor in an area with these natural physical features. In the past, marshes and mangroves were often selected for marina sites, as they possess environmental requirements desirable for a small boat basin (that is, protection from waves and strong currents). These wetland environments should be avoided because of their high biological value and the "no net loss" policy related to wetlands.

d. Small boat basins usually occupy several tidal zones extending from terrestrial through the subtidal zone in order to accommodate land facilities, automobile parking, boat dry storage, launching ramps or lifts, boat docks, fueling docks, bulkheads, breakwaters, and jetties or groins (see Figure 2-1). Due to concerns over construction in wetlands, intertidal, and nearshore zones, and the lack of suitable sites, some small boat basins have been

excavated in upland areas with connecting channels to navigable waters (U.S. Fish and Wildlife Service 1980). Such sites have their own unique environmental problems that should be thoroughly investigated prior to selecting a site for a small boat basin.

2-2. Fresh Water

Freshwater recreational fishing is supported by marinas, harbors, and access facilities on natural lakes, reservoirs, and inland waterways. Facilities for lake and reservoir fishing are often on the shoreline. Waterway harbors are located within 5 miles of fishing waters. Minimum depth for channels is 4 ft, with easy navigation resulting from readily identifiable landmarks and numerous guides to navigation (Chamberlain 1983).

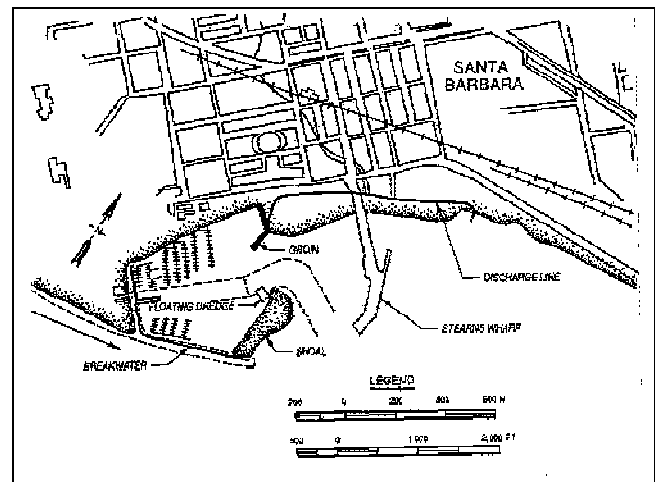


Figure 2-1. Breakwater protecting recreational harbor, Santa Barbara, CA

2-3. Great Lakes

a. An appropriate site for a small boat basin along the Great Lakes, as well as other locations, must have convenient access to water supply, electric power, and suitable transportation to nearby business or residential centers. However, physical attributes of the proposed site must be considered if the boat basin is to function in its intended manner. High water and dangerous currents from nearby rivers can be hazardous to navigation and mooring facilities. Strong winds could cause water damage and could be hazardous to the facility and moored boats.

b. Longshore currents driven by wind-generated waves carry large volumes of sand (usually from the northeast toward the southwest) along much of the shoreline of the Great Lakes (Wood and Davis 1978). In order to

maintain a natural balance between destructive and constructive wave forces, this movement of sand should not be interrupted. However, when a barrier is placed across the active transport zone, an imbalance occurs that can result in sedimentation on the updrift side and severe erosion on the downdrift side. A breakwater placed to protect the entrance to a small harbor can disrupt this natural flow of sediments along the shoreline. Negative effects can be reduced if a proposed boat basin is located

in a natural harbor. However, dredging on the updrift side and beach nourishment on the downdrift side may be the only suitable solutions to this problem. Maintenance-free boat basins are an unreasonable goal along the Great Lakes. However, facilities can be located where damage from wind and high water is unlikely. If a natural breakwater or cove is unavailable, the small boat marina facility will have to be constructed.